Louisiana Universities Marine Consortium
LUMCON
8124 Hwy. 56
Chauvin, LA 70344 USA

Tel (PWS): (985) 851-2876 FAX: (985) 851-2874
email: psammarco@lumcon.edu

To: US Department of the Interior
Minerals Management Service
Attn: Rules Processing Team (RPT)
381 Elden St., MS-4024
Herndon, VA 20170-4817

From: Dr. Paul W. Sammarco
Professor

Re: RIN 1010-AD30
Comments

Date: February 27, 2006

On Dec. 30, 2005, MMS called for comments on "Alternate Energy-Related Uses on the Outer Continental Shelf." I have been working as a scientist in this for about six years and have considered some of the issues you raise in depth. Below please find my comments.

I have also attached a separate document recommending a system to be considered for transfer of liability from current hydrocarbon-producing platform owners to other users. You may wish to review this as well.

I hope you find this information useful. I thank you very much for your consideration in this matter. May I congratulate the agency on its boldness and foresight in this new and highly innovative initiative. I wish you luck in your deliberations. If there is anything I can do to help, please do not hesitate to contact me.

Comments – RIN 1010-AD30
Paul W. Sammarco, LUMCON, Chauvin, LA

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1) Are there Regulatory Regimes, either in the US or abroad, that address similar or related issues that should be reviewed or considered as MMS moves forward with the rule-making process?

Yes, there are. This concept was covered in discussions held in the Legislative Sub-Committee of the Louisiana Governor's Platforms for Mariculture Task Force, of which I was a member, during 2004-2005. There are regulations that are designed for terrestrial applications that may be applied to the marine environment, particularly as mariculture and alternate uses for offshore platforms are concerned. These are laws and regulations that apply to industrial parks. Whole areas are defined with the specific purpose of research and development. Regulations forbid through traffic, in order to maintain the integrity of the park.

One of the problems with offshore mariculture has been the problem with blocking navigable waters to commercial and other ship traffic, for which the US Coast Guard is responsible for enforcing. The application of the above terrestrial laws and regulations could be applied to ***"Offshore Marine Industrial Parks",*** forbidding shipping through them in order to maintain the integrity of the parks and reduce risk of damage to platforms and equipment operating in the area. These laws already exist within individual states and may perhaps be applied to state waters. I believe that similar federal laws and regulations also exist in order to accommodate needs in US territories (PR, Guam, American Samoa, etc.). If this is the case, then they may also be applicable to federal waters in the EEZ. This is an area which I believe is worth investigating.

The novel application or amendment of these existing laws will greatly reduce many of the concerns of new offshore operators and facilitate the construction and operation of new offshore non-hydrocarbon related industries.

General issues:

Please provide information on how MMS can best:

A. Provide access for resource and site assessment.

I find the major concerns of oil and gas companies are derived from liability of anyone not directly associated with the oil company actually setting foot on the platform. Even standard boarding permits have been problematic and have often transgressed guidelines of acceptability by the State of Louisiana Office of Risk Management by requesting a sign-off of total liability - even involving gross negligence. This has been a consistent problem for six years. If MMS could facilitate visitation by interested parties for purposes of assessment for research, purchase, etc., I think this would be a great step forward.

B. Issue the appropriate instrument (e.g., leases, easements, rights-of-way).

I believe that leases for platforms under alternate uses could be handled in a manner similar to the manner in which they are currently being handled. Once again, the problem is not the lease, it is the potential liability associated with the lease – which is derived from the original drill operations of the first and subsequent owners. New owners using the platform for non-hydrocarbon producing purposes should not be held responsible for problems caused by industries previously involved in production. The cost of insurance would be prohibitive for almost any new industry looking to base themselves offshore. The exception would be the case where the new owners had specifically caused a problem with the well through their new activities.

I have attached a document recommending one mechanism by which liability associated with offshore activities could be distributed among users in such a way as to make them affordable for all concerned. It identifies liability issues to be differentially assigned at four different levels.

C. Solicit interest for development projects.

I do not believe that MMS alone could effectively reach all those industries that might potentially be interested in new types of operations offshore. The Federal Register will certainly help, but there will be interest from parties who do not normally interact with MMS but may interact routinely with other federal (and state) agencies. Examples include DOE (energy – wind and wave), DOC-NOAA (mariculture), SBA (recreational diving), etc. May I recommend that MMS take on the role of lead agency in promoting alternate uses of platforms, but that it also advertise through its sister agencies in order to reach as many potential new clients as possible.

D. Identify Terms and Conditions of Use such as:

. ***Issuance.***

There must be only one lead agency that handles permits for platform usage. My opinion is that this should be MMS, simply because of its extensive experience in this area and its excellent track record. On the other hand, one cannot expect MMS to be conversant with the details of operation of the myriad of new industries that may use the platforms in the future. In those cases, it will be necessary for it to consult with its sister agencies (NOAA, EPA, DOE, etc.) for recommendations regarding issuance of a permit and specific recommended terms and conditions. It will also be essential that the protocol for consultation be clearly defined and streamlined. Federal and Commonwealth of Australia Inquiries have recognized for literally over a century that authority over an activity by a multitude of agencies can be highly problematic and obstructive. In this case, however, I see no alternative regarding regulation of alternate uses of offshore platforms for a wide variety of uses; thus, it needs to be done well.

. ***Duration.***

In the future, platforms will be thought of as office buildings. The lease of a platform will most likely fall to either a single user or a single owner. The owner may choose to "sub-lease" to a number of clients who may in turn utilize a single platform for a variety of purposes. The duration of the lease to the owner should be concomitant with current regulations. The duration

of any one of the "sub-leases" should be concomitant with the specific use, which may vary widely. For example, a recreational diving company may wish to utilize the platform, say, for only three years. A wind-energy generation company, however, may wish at least a 10-yr. sub-lease to insure that their investment in new equipment, installation, the laying of cables, etc. is recouped and sufficient time is permitted to insure a profit.

. ***Assignment of rights.***

By "assignment of rights", I presume that MMS here is referring to any commodity which is derived from the platform. This can only apply to non-renewable resources, such as gas, oil, or minerals. I believe that the federal government will be able to tax the platform users for production or sale of a commodity, as in any other business, but the concept of "rights" or "royalties" to such renewable resources as air or open ocean may not apply here. One can, however, declare an area of a block which is assigned for exclusive use by the lessee. In the case of fish mariculture or wind energy generation, this will be important.

. ***Suspensions and Cancellation of Rights.***

Clearly, if a lessee violates federal regulations (*e.g.* EPA regulations), that company stands to be fined, have their rights suspended, or forfeit their lease all together. I believe MMS already has a system in place to deal with such violations, and continuing such is recommended. The current regulations will have to be reviewed by MMS in consultation with relevant sister agencies in order to extend and adjust them to fit the new activities to be pursued offshore.

. ***Limitation of Rights.***

I believe that the most important limitation of rights will concern the well(s) under the platform and the natural resources associated them. This is a question that MMS must consider carefully. Does the lessee still retain natural resource rights if the purpose of the lease is something other than hydrocarbon exploration and production? In order to release the original hydrocarbon producers from most of their liabilities, this may have to be the case. That is, if production of a stranded resource once again becomes cost-effective and profitable, the new platform owner could conceivably choose to cease using the structure for its alternate use and return to hydrocarbon production. In that case, perhaps such rights should not be limited. Nevertheless, liability for the wells should not be assigned to the new platform owner unless the wells have been used or disturbed. (See Attachment A on Liability.)

E. Identify geographical areas of interest for:

. ***Resource and site assessment***

All areas of the northern Gulf of Mexico (GOM) have already been divided into lease blocks. Resource and site assessment will be different for each type of use of the platforms. For example, average wind fields will be critical for the assessment of suitability of a site for wind-energy generation. The presence of warm, Caribbean "blue water" will be essential for the mariculture of scleractinian corals and demersal reef fish for the ornamental trade. The criteria will vary depending upon the specific use. If a new platform owner is to host several types of industries on a single unit, then an assessment at a number of different levels will be required.

If MMS and its sister agencies are to devise a system by which to assess the resources and sites for the lease blocks, they must first have a list of all possible industries which could be supported by platforms. This list is bounded only by one's imagination (see Kolian and Sammarco, 2005). Therefore, even if it is preliminarily defined, the list must be considered incomplete and a living document. Room must be left for expansion; *e.g.*, "and other activities."

. ***Development feasibility.***

Development feasibility implies R&D. Once again, some areas in the northern GOM will be ideally suited for wind-energy generation, others for coral mariculture, others for fish mariculture, others for recreational diving, others for recreational fishing of certain pelagic species of fish, etc. In many cases, these will overlap. All of these examples can be accommodated in the central and western regions of the GOM at the edge of the continental shelf. In the central region, in inshore and mid-shelf waters, wind-energy production may be more appropriate, because of the negative effects of the Mississippi River plume, low salinity, high turbidity, and most importantly hypoxia might have on the other activities, making them infeasible. I am currently conducting surveys to define the limits of certain biological populations in the northern GOM to help identify the viability of certain regions for certain activities (Sammarco et al., in press a,b, and work in progress).

F. Ensure Fair Competition.

It is important that the cost structure for surveying, permitting, leasing, and insurance be defined in such a way as to permit small to moderately sized businesses to initiate activities in this new offshore platform industries as well as the current larger corporations, which are now all hydrocarbon exploration and production companies. It should be recalled that many of these new industries will be involved in first-time initiatives – small and large. The federal government should attempt to do all within its power to foster the development of such industries. Surely, not all will succeed. But those that do succeed will help to change the face of the offshore industry in the GOM, the US in general, and elsewhere in the world a very long time to come. Whole new sets of industries will evolve over the next 25 years and beyond.

G. Process permits and applications.

Once again, I believe that the lead agency for the processing of permits and applications should be MMS, in consultation with relevant sister agencies. Please see *"D. …Terms and Conditions…Issuance"*, above.

H. Process Pre-Application Resource Assessments.

See *"G. …Permits and Applications"* above.

I. Allow Concurrent Developments.

I think that there will be little alternative than to allow concurrent developments in the future use of offshore platforms. To return to the office building analogy, the owner of a large, multi-story

office building would not be able to sustain the costs of ownership and maintenance by leasing to only one small firm, e.g. an accounting firm. It is only through multiple sub-leases that the entire system can be sustained and become profitable. It is important that concurrent developments on a platform and on a lease block be permitted. Different platforms with compatible activities should also be permitted to exist on a single block.

Also see *"E. …Development Feasibility"* above.

J. Minimize Multi-Use Conflicts .

Just as it is important to allow concurrent developments, it is equally important to understand and minimize multi-use conflicts. For example, it would be inappropriate to permit coral mariculture on a platform which is within a certain distance of a net-pen fishery mariculture unit. The waste stream from the latter could easily stress or kill the corals if the concentration of nutrients were too high. On the other hand, some applications are totally compatible – such as wind energy generation, coral mariculture, and ornamental fish mariculture. Each application will need to be reviewed individually on its own merit. It may be possible to identify regions suitable for some activities and simply inappropriate for others; (see *"E. Identify Geographical Areas…Resource and Site Assessment"* above).

Specific questions:

2. **Possible Development Scenarios include phased access rights, which would allow for resource and/or site assessments and research prior to securing additional access rights. Rights could be permitted on a case-by-case basis. Development rights would be secured by a competitive process. An alternative would be to require that interested parties secure the access rights to an area prior to conducting assessments and research.**

   Please comment on these possible options.

There may be several ways to handle this. It is likely that a central firm may purchase one or more platforms and make them, or some of them, available for sub-lease to interested parties for development. In that case, the R&D phase of the operation proposed by the sub-lessee and the terms and conditions of that sub-lease could be negotiated between those two entities, in consultation with MMS.

In this early stage of the development of alternate uses for offshore platforms, new companies must be able to run R&D feasibility studies, even if only for a short period, prior to making any long-term commitment for leasing and operation. For example, at the moment, I am applying for research funds to attempt a feasibility study for raising ornamental corals and fish on several platforms. This must be done on platforms currently producing oil. Our team has no wish to be an impediment to production. A great deal of mutual understanding and respect for needs of the two independent operations will be required here, and I am certain that that will occur. These types of partnerships will most likely be necessary and common during the developmental phase of these new offshore industries.

Development rights on the basis of a competitive review process is reasonable.

3. In cases where applicants or interested parties propose activities that would Foreclose Competing Future Uses, how should MMS estimate ''a fair return,'' especially if the competing uses would likely be public uses?

The most "permanent" uses of offshore platforms that I can imagine are those which are currently being pursued – the offshore production of hydrocarbons. The reason for this is that such activities permanently alter the earth's crust through the drilling process. All uses that are currently being proposed (see Kolian and Sammarco, 2005) may be considered temporary. All of them may cease and be replaced by another activity – or no activity at all. I do not believe that foreclosure of competing activities would be permanent; I believe they would be temporary, in which case the terms and conditions of permits and leases could spell out the precise mechanism by which the owners will be responsible for shut down and clean up after cessation of its activities.

4. What constitutes a Geographical Area of Interest?

The geographical area of interest will vary between activities. In some cases, such as wind energy generation, regions will be very large. In others (*e.g.*, the mariculture of hermatypic scleractinian corals), the geographical area will be restricted to the edge of the continental shelf. In the case of the mariculture of ahermatypic scleractinian corals, the region may be almost as large as that for wind energy generation.

5. What assessments should we require prior to competition?

I presume that by "assessments", you mean regional or environmental assessments. The region will need to be assessed for the specific requirements of the industry and application – to determine whether the site is suitable for such. The assessment will also have to determine whether any factors - either natural or anthropogenic - are present which might prohibit the activity. These environmental characteristics should weigh heavily in the review of any application for use.

6. How should MMS structure the competitive process and the application process used to issue OCS access rights? Should MMS auction access rights or engage in direct negotiation?

First, MMS needs to determine the suitability of the site for the activity – or verify the interested party's claims that the site is indeed suitable. Secondly, the plan for offshore development must be sound and meet all environmental restrictions defined by the EPA. Thirdly, the interested party must show that the initiative will be feasible. And lastly, the interested party must show that the operation will be profitable.

Again, in order to insure that small as well as large companies will have access to offshore development, direct negotiation would most likely be the best mechanism to use for assigning

rights. If auction is used, only the larger companies will be able to procure offshore rights. Another approach might be to have tiers of access – a certain number of platforms for small *vs.* moderately *vs.* large companies – a quota, in order to insure that a broad cross-section of the industrial community has access to development in this new environment.

7. Should MMS take a broad approach to developing a program, or should efforts be targeted to specific regions?

I believe that MMS should leave the door open to whatever types of initiatives are proposed at this point. It is only in this way that the nation will be able to test the creativeness of its industrial sector. To do such means leaving both the types of activities and the geographic regions open. The agency always has the right to deny access to a specific region or a permit for a specific activity, but leaving it open for proposals will allow the initial scoping process to develop without hindrance.

8. How should MMS consider other existing uses when identifying areas for access?

Other existing uses must be taken into account when assigning a new activity for a region. A good example would be the installation of large net-pen mariculture units in a region already used by shrimp trawlers. The former activity will undoubtedly exclude the latter. This change in activity will need to be negotiated with the users, which will not be easy. On the other hand, if the approach of assigning "marine industrial parks" is used, as recommended above (see "*1. Regulatory Regimes"*, above), this problem would be obviated. In addition, in this particular example, the actual proportion of area trawled being restricted will be quite small.

9. How should MMS balance existing uses within an area with potential wind and current energy projects?

These two uses are not mutually exclusive. Energy generation by wind will not impede hydrocarbon production, nor *vice versa*. Platforms may be installed at precisely the same densities as at present. The only stipulation may be that oil producing platforms, if large and high, should not be placed in a sector upwind, defined by average wind direction and velocity, so as not to obstruct far-field wind flow and cause turbulence, thereby decreasing the efficiency of the wind units. A certain distance and direction from the hydrocarbon-producing platform will need to be specified by the engineers.

10. Should MMS require permits for collecting data from vessels? Should we consider this information proprietary? What criteria should we use for holding the information proprietary?

I believe that most of the data which is collected from ships now is not necessarily regulated, unless it is potentially harmful or disturbing to the environment (e.g. seismic surveys). Biological information collected by vessels is often not regulated, unless take is involved. I believe that MMS should retain whatever permitting regulations it already has for data collection, dissemination, and privacy. If additional permits and regulations are needed, it

should consult with its sister agencies (e.g. NOAA) and devise new regulations *apropos* to the proposed operations.

11. What criteria (e.g. environmental considerations, energy needs, economics) should MMS consider in deciding whether or not to approve a project? What criteria should MMS consider for different competing projects (i.e. wind versus current) for the same site?

Please see *"6….Structuring the Competitive Process…"*, above.

Program Area: Environmental Information, Management, and Compliance

Description: Environmental Management Systems and Review will be critical components of any activity in the new program. Environmental management systems must address all phases of planning and development, on-going operations, and removal of facilities associated with the new program. The new program will require identifying mitigation measures, monitoring programs, developing methods of validation and verification; establishing roles and responsibilities; and developing procedures for determining mitigation effectiveness, all of which are components of an environmental management system. The environmental management system will rely on an adaptive management strategy that gathers and uses information, including monitoring and evaluation of activities and their environmental consequences. Based on the results of this analysis and a determination of the effectiveness of the mitigation measures, revised or new mitigation measures could be implemented. The new regulations will require compliance with all pertinent environmental laws and regulations. General issues: **Please provide information regarding:**

K. Information requirements needed for environmental management systems for any project.

As mentioned above, relevant sister agencies will be key in helping to define environmental information requirements for projects. Projects may be expected to vary greatly in their potential environmental impacts. EPA and NOAA will be key consultants in devising new environmental regulations.

L. Assessments and studies of risks and impacts (site-specific and cumulative) associated with offshore energy and alternate use projects.

Once again, risks and impacts will be activity-specific. Each general area of pursuit will require its own considerations of site-specific and cumulative risks and impacts. One risk which immediately comes to mind is that of the P&A'ed well. See the attachment on Tiered Liability which addresses this issue.

M. Examples of best practices for environmental compliance, monitoring, and effectiveness being used in the U.S. and elsewhere.

Please consult NOAA and EPA on this issue.

N. Balancing environmental considerations with national energy needs.

Specific questions:

12. What types and levels of environmental information should MMS require for a project?

Once again, these requirements will be driven by the specific activity. This is like trying to ask a huge industrial research park in California what types of environmental information should be required for the park. A building in which nuclear research is being conducted will need to submit very different types of information for review than the R&D section of a paint corporation which may be located within the same park.

13. What types of site-specific studies should MMS require? When should these studies be conducted? Who should be responsible for conducting these studies?

See *"12"* above for question (a). In terms of timing, the studies should be conducted at the same times as any other activity that requires environmental monitoring – before, during, and after. The company involved in the activity should be responsible for its own monitoring, although this can be delegated to an expert consulting firm. There may need to be governmental monitoring as well, at least by spot-checking, in order to provide verification of the results received.

14. What should be the goals and objectives of monitoring, mitigation, and enforcement?

The goals and objectives of monitoring, mitigation, and enforcement are clearly to protect the human population from potential ill effects of the activity and also to protect the environment from short- and long-term ill effects.

15. What types of impacts are of concern? What are effective approaches for mitigating impacts? How can mitigation effectiveness and compliance with Federal environmental statutes be assessed?

These questions only become relevant when tied to a specific activity. The only overall issue applicable to the use of existing platforms for alternate uses concerns the existing associated wells. Liability for these must be assigned somewhere, mitigation plans need to be in place in the event of a rupture, and additional inspections may be necessary through time.

16. What regulatory program elements lead to effective enforcement of environmental requirements?

Self-monitoring and regulation with *random, unannounced* spot-checks for compliance effected by the federal agency are recommended. This has been shown to work in the US and Australia.

17. How should environmental management systems be monitored (by the applicant, the MMS or by an independent third party)? What should be the MMS roles versus the roles of industry for ensuring appropriate oversight and governance?

See *"16"* above.

Program Area: Operational Activities Description:

Operational Activities address all aspects of the program from the application through project assessment, development, installation, and production, to end of project life and removal of facilities. Inspections, monitoring, and enforcement are conducted throughout the entire project life. Risk analysis, engineering, studies, and research occur as needed.

General issues: Please provide information on:

O. Permitting pilot projects.

I put forth to you the following quote for consideration: "Nothing will ever be attempted if all possible objections must be first overcome" (Samuel Johnson). Permitting pilot projects is essential to the potential success of any proposed activity using existing offshore platforms. We are at a point in the history of offshore development that could lay the groundwork for changes for hundreds of years to come. It is important that we not stifle these opportunities. It is agreed that risk must be managed and minimized.

P. Ensuring human health and safety on and adjacent to the project site.

This is understood and agreed. One of the concerns that will arise is the threat of contamination from the platform jackets, derived from residues accumulated during its producing life. This issue is addressed in the Liability attachment.

Q. Protecting environmental resources during construction, production, and removal.

The general requirements regarding environmental protection for any new activity on the OCS should be no different than those for hydrocarbon production. In fact, the types of risks will be more biochemical and biological in nature rather than physical or chemical (organic or inorganic). Major concerns will most likely revolve around nutrient enrichment from waste streams for pelagic fish mariculture *via* net pens and potential genetic contamination from any kind of mariculture there. The answer to the first concern is to keep stock densities at reasonable levels and to place pens in a region where wastes will be carried away by prevailing currents and

diffused to levels where natural biodegradation processes can handle them. In the second case, only local broodstock should be used for mariculture in this region. In this way, there can be no "genetic pollution" of surrounding waters or populations.

R. Identifying design and installation requirements associated with new projects and modification of existing facilities.

Once again, any modifications will be activity specific. Generators and pumps will most likely remain, as will living quarters. All navigational aids will remain. Mariculture operations will require large tanks topside. Conductors may have to remain in place for the purpose of expanding surface area for natural recruitment and grow-out of site-attached fish and corals. A dive platform may need to be installed to support SCUBA diving activities. Propellers and a support system will have to be constructed for the generation of wind energy.

There is an important point to add here. It is highly recommended that the existing offshore pipeline that carries oil and/or gas to shore from the producing platforms be permitted to remain in place. This is for several reasons. Firstly, platforms becoming involved in wind energy generation will need to transmit their power *via* cables to shore. Cables may be snaked through existing pipelines for such delivery. Secondly, it is possible that within the next 15 yrs or so, technology may improve to the point where it is cost-effective to extract the remaining stranded oil and gas reserves under the continental shelf. In that case, the existing pipelines may be brought back into service to fill that need.

S. Identifying production requirements as a component of diligence.

No comment.

T. Managing end of life and facility removal.

Once again, current regulations regarding the decommissioning of platforms after their useful life can remain similar to existing ones. The difference here is that we now know what their value is as artificial reefs. Leaving them in the water should remain not only a viable alternative but a preferred one. If navigation is a problem for a given unit, it can be cut-and-toppled to depths of $\geq$ 85' or moved to a Rigs-to-Reefs site. Regulations already exist to accommodate this.

U. Conducting oversight responsibilities (e.g., inspection, monitoring, enforcement).

Please see *"16"* above.

V. Identifying technology assessment and research needs.

The R&D needs of the new industries will be identified and pursued by them. It will be nearly impossible for the federal government to predict what those needs will be. What is predictable is that the companies will need the flexibility to conduct research and develop those technologies in an environment where they can realistically test their viability. It is also predictable that they will need assistance from MMS and its affiliated agencies in the form of flexibility in its regulations during the developmental phase. They may also need assistance in the form of

financial support *via* grants and loans. In this way, the DOED and SBA may also need to become involved in this new set of initiatives.

W. Preventing waste.

General waste generated by the activities on the platforms should be handled has it has under current regulations. Some additional wastes may be generated by specific activities, such as the waste stream of fish grown under net-pen mariculture conditions. See *"Q"* above.

X. Conserving resources.

Specific questions:

18. What options should MMS consider as alternatives to facility removal? Are there unique issues (such as liability) associated with those options?

The primary alternative to facility removal is, of course, to use them for other industrial (or military*) purposes. Liability issues are addressed in the Liability attachment.

(* This issue is not to be discussed in writing here. If you would like me to discuss these possibilities, I would be happy to meet personally with an agency representative)

19. What engineering challenges should be considered when operating in an OCS environment?

Having now studied the fauna and flora of our offshore platforms in the GOM for six years, using the jacket itself as well as artificial settlement structures, I have been able to identify several engineering challenges which should be addressed in the future use of offshore platforms for a variety of uses.

a) *Wind energy generation.* A major criticism has been the obstruction of these structures to the migration of millions of birds across the GOM directly through the regions where optimal wind fields occur. These migrations are, however, highly predictable in time, duration, and altitude of flight. This can be thwarted by folding up the propeller system, collapsing the support structure, and shutting down energy production for these short periods. The propellers could be fully deployed once again after the birds have passed. This same technique may be used to avoid damage from hurricanes or severe storms.

b) *Mariculture of corals and fish.* Probably the most significant threat to this activity is loss of support structures due to hurricanes and severe storms. MMS recently released data regarding extreme waves detected at sea during Hurricane Ivan (2004). In these cases, it will be necessary to lower structures supporting mariculture units to deep water in order to protect them from wave and current damage. They may also be removed and placed in tanks topside. My research team will be employing a marine engineer to help us design such technology for the mariculture system we are proposing to NOAA.

20. What safety issues exist when operating an energy production facility on the OCS?

MMS is currently in the best position to answer these questions. Oil companies should also be consulted directly on this.

21. How should operational activities be monitored (e.g. annual on-site inspections with verification of operating plans)? Is there an appropriate role for the applicant and independent third party certification agents? Describe existing models that could serve as a prototype inspection and monitoring program.

See *"12"*, *"13"*, and *"16"* above.

22. Are there special considerations that MMS should examine in developing an inspection program that covers a diverse set of renewable production facilities? If so, what are they?

The inspection program will be driven by the activity itself. In the case of energy production, be it wind, ocean wave, ocean thermal, etc., each has its own risks and impacts. There is no blanket answer to this question. We are most fortunate to have some of the best engineers in the world resident in our university system. I believe that the research community should be consulted to help develop a plan by which to address these issues.

Program Area: Payments and Revenues Description:

MMS has the responsibility to ensure a **fair return to the United States** for the use of any lease, easement, or right-of-way granted. The MMS is required to establish bonus bids, rentals, fees, royalties, or other payments to ensure that return. Additionally, cost recovery fees may be collected to compensate for the administrative costs of providing various services. Developing a payment and revenue structure, as well as appropriately designing fiscal terms applicable to energy and alternate use projects, requires additional information.

General issues.

Please provide information on:

Y. Bonus bids.

No comment.

Z. Rentals.

I presume that "Rentals" refers to Lease Fees and would be ongoing on an annual basis. Lease fees are perfectly understandable and should be handled in the same way as with hydrocarbon producing platforms. The fees, however, cannot be exorbitant or they will make leasing impossible for new companies that do not produce the same types of revenue as oil and gas

companies. The fees should be concomitant with the proposed activities and can always be adjusted if those activities change in nature.

AA. Royalty Terms.

The collection of royalties from products produced offshore, whether energy or commodities such as fish, is understandable. Once again, royalties should not be exorbitant, in order to make the business cost-effective and profitable. They should vary between businesses.

There is some concern at the moment regarding the sharing between the federal government and the states, of revenues generated offshore. Justification for this is that those states support the offshore industries through their infrastructure. I am in agreement with a revenue-sharing concept. This may also be extended to revenues generated from offshore activities other than hydrocarbon production. I would recommend, however, that if revenue is to be shared with the states, that some level of accountability be applied for its use within the state. One has only to review the road infrastructure in Louisiana – at the municipal, parish, state, and inter-state levels to see that they do not receive the appropriate amount of support for maintenance. Such revenues should be fed into areas which support – directly or indirectly – offshore activities.

BB. Fees, including cost recovery fees or other payments.

No comment.

CC. Assessing value/benefits and impacts, Public, Private.

What you are inquiring about here is an SIA – Socio-Economic Impact Assessment. I think that there can be no harm in conducting an SIA prior to initiating these offshore activities. The Canadians are experts at this, and the Australians aren't far behind. I believe that such should be run prior to, during, and after initiation of the activity to assess impact. These exercises are, however, expensive. I would there recommend that an SIA be conducted considering not just one proposed activity but a number of them – for purposes of cost-effectiveness. Data relating to individual activities could be teased out if the questions are constructed carefully and the data from them are kept separate during the logging process.

DD. Valuing leases, easements or rights-of-way.

Please see *"1…Regulatory Regimes…"*, particularly with respect to Offshore Marine Industrial Parks.

EE. Comparable Fiscal Systems.

The Royalty system currently in place for offshore hydrocarbon production can be used as a model for royalties derived from other offshore activities. A federal/state revenue sharing program should also be considered, with the constraints mentioned above (see *"AA. Royalty Terms"* above).

FF. Surety bonds.

Just as in the case with hydrocarbon-producing platforms, platforms used for alternative purposes should have a bond associated with them to insure removal or some form of decommissioning in the long term.

Specific questions:

23. What should the payment structure be designed to collect? Should payments be targeted at charging for use of the seabed? Should payments try to capture the opportunity costs of other activities displaced by the activity? Should the payment structure be designed to capture a portion of the revenue stream, and if so, under what circumstances?

The payment structure should consist of a lease fee and a royalty fee or tax for the goods produced; probably no more than this – at least during the developmental phases. And it should be adjusted to the specific type of activity being pursued there. Some will be more lucrative; some will be less so.

Charging for use of the seabed is only appropriate where such is the case. If the agency wanted to equalize fees for usage, it could charge for actual amount of bottom covered by the platform.

I think that under this new regime, displaced activities are displaced activities and that no compensation should be paid. For the most part, only small areas of the sea bottom and surface will be required and no major problems should result. Even in the case of declaring an area off-limits for trawling or long-lining, it will be a very small proportion of the total area used by the displaced concern – and that can easily be verified. Pay-offs can be considered in very difficult situations.

Capturing part of the revenue stream in the payments if the system is designed to encourage small businesses to initiate offshore activities and allow them to grow into larger businesses. Raising the bar too high is not going to do anyone any favors. This has been a major problem in Australia for new businesses, where they are required to pay a full year's worth of projected to taxes to the Commonwealth Government before the business is initiated. This has stifled start-up for many industries there.

24. Offshore renewable energy technologies are in their infancy. Should the payment structure be designed to encourage the development of these activities until the technologies are better established?

Absolutely. We are looking at the wave of the future. It is well known that the oil and gas reserves of the continental shelf will be played out within 15-25 yrs – perhaps 40-50 yrs at the outside. Although oil/gas production will continue in deeper waters off the continental shelf, the use of renewable energy resources will be a critical supplement to that. At this point in time, it is also crucial that the US decrease its dependence upon foreign oil reserves to meet its energy requirements.

25. What methods are used by the renewable energy industry to quantify the risk and uncertainty involved with estimating the size of a renewable energy resource, and evaluating its profitability?

I am only familiar with the wind energy situation. This has to do with estimations of required wind-fields in the region of choice for construction. Apparently, the northern Gulf of Mexico has some of the best and most reliable sources of wind – including direction, velocity, and predictabililty – in the world.

26. What measures of profitability are commonly used as renewable energy investment decision criteria? How do bonus bids, rents, royalties, fees and other payment methods impact the profitability of these projects?

No comment.

27. Are there economic models available to calculate the profitability of renewable energy proposals?

May I recommend that MMS contact an engineer at Tulane University (Dr. Charles Reith) and a socio-economist at University of Louisiana at Lafayette (Dr. Robert Gramling) for guidance on this issue.

28. Increased reliance on renewable energy offers both economic and environmental benefits. What are the public benefits to society and do they differ from market driven benefits?

Firstly, the economic and environmental benefits to be derived from utilization of renewable energy sources are in themselves public benefits. Secondly, the public benefits are that we may not have to go to war in the future to supplement our non-renewable resources of energy. In terms of medium-term benefits, the change-over from fishing to mariculture represents the same magnitude of change as when our ancestors switched from being a "Hunter-Gatherer" society to one which uses "Agriculture" thousands of years ago. If you would like to understand the impact of that change, fly over almost anywhere in the US or Europe and look down. We are now an agrarian society.

We have been "fishing" the seas for thousands of years and have now reached a point of no return where we are "fishing down the food chain". Having over-exploited most of the large predatory species, we are now taking smaller and smaller less preferred fish. We can no longer sustain the ever-growing human population of the earth. Larger and larger sources of protein are now required to support it, and the sea can simply no longer deliver it. Mariculture is the answer – certainly in the short- and medium-term. If that is not a benefit to the public now, and to our children and grandchildren, I don't know what is. The long-term answer to this problem, of course, is that the human population of this planet should not be permitted to grow much larger than it is now - ~6.5×10^9 people. The answer to that problem is neither simple, palatable, nor pretty – but it is something that will have to be reckoned with – whether we accept it or not.

29. In section 8 (p) of the OCSLA as amended by Section 388 of the Energy Policy Act, the Secretary must require the holder of a lease, easement or right of way granted under that subsection to furnish a surety bond or other form of security. What options should MMS consider to comply with this requirement?

I believe the same should be applied to new owners.

Coordination and Consultation Description:

Section 8(p) of the OCSLA, as amended, includes several provisions relating to **Coordination and Consultation with Interested and Affected Parties**. Those provisions call for coordinating and consulting with state governors or local government executives concerning activities that may affect them, developing and implementing regulations in consultation with certain Federal agencies and the governors of affected states, and ensuring that activities are carried out in a manner that provides for coordination with relevant Federal agencies. MMS views these requirements as essentially covering all aspects and phases of the non-oil and gas energy and alternate use program established by the Energy Policy Act of 2005.

Questions relating to coordination and consultation:

30. While MMS considers this ANPR an appropriate start at consultation with interested and affected parties, what other efforts could be undertaken at this early stage of program development?

Once again, consultation with parties interested in developing new offshore industries and relevant sister agencies will be essential to the success of new initiatives. It should be accepted that during the early phases of regulatory systems design and decision-making, there will be mistakes made. This is natural. We are all feeling our way at this point. It is important that provision be made to review these new regulations and guidelines on a regular schedule, particularly in response to issues raised by users, and adjust them accordingly. The regulations must be, at least in the initial stages, a living document which will become more stable, with fewer and fewer adjustments being made as time progresses. In the beginning, workshops and round-tables will be the order of the day.

31. Should a broad approach be taken to developing a program or should efforts be targeted to specific regions with commensurate coordination and consultation?

I would recommend using the broad brush. Keep your options open, and, likewise, allow industry to keep its options open. We are entering an exploration phase. Regionalizing will be appropriate for some activities and inappropriate and unnecessarily restrictive for others. See *"E. …Geographical Areas…Resource and Site Assessment…and Development Feasibility"* above.

32. Would the establishment of Federal/state cooperatives for targeted areas be useful? Similar to the process for OCS oil and gas program formulation, should we solicit comments on which areas of the OCS should be included or excluded from the program? After establishing where there is consensus in support of program

activities, should coordination and consultation efforts be directed to those areas? Conversely, should such efforts be curtailed or abandoned for areas recommended for exclusion?

Federal/state cooperatives for targeted areas? Absolutely. Different states have different interests for use of the OCS, which are not necessarily compatible. A perfect example of the failure of an over-regionalized system is the Gulf of Mexico Fisheries Management Council. Because of differences in perspective between FL and the other Gulf of States, the Council has a particularly difficult time in attempting to balance its GOM regulations. Probably the best way to handle the cooperatives would be to start with single state/federal coops. If individual states jibe closely in their interests in and perspectives on platform usage and offshore development, then several state coops may be joined together later. I would predict that this would be the case for TX & LA, and MS & AL.

I don't think that there is any way around inviting public comment on areas of the OCS to included or excluded from the program. To ignore this consultation aspect of the process could potentially be disastrous, particularly in a new initiative like this.

I believe coordination and consultation will need to be regionalized and then tied back to central administration for further processing at the national level. Both the regional and national interests must be met through the program.

There will undoubtedly be areas recommended for exclusion. Some regions are very conservative in this regard. Some industrial parties will wish to protect their current activities and interests. One must expect that some areas will be designated exclusion zones and others acceptable for development. I offer to the MMS the example provided by the successful zonation of the entire Great Barrier Reef Marine Park in Australia – covering 2,000 miles and many thousands of individual reefs – through the process of repetitive consultation with the public. Almost all arguments were resolved by the second or third round of hearings, and there were no appeals against the final zoning plans. Consultation with the Great Barrier Reef Marine Park Authority (GBRMPA) in Townsville, Qld. or Canberra, ACT, Australia is highly recommended. My recommendation for a first point of contact would be Mr. Richard Kenchington.

33. What are the critical stages (e.g. site evaluation, application, competitive sale) for consultation with affected parties?

Site evaluation is probably foremost. The application should be relatively routine; the firm would not submit a proposal if it didn't think the proposal was feasible.

34. Should procedures for consulting with interested and affected parties be codified in the regulations? In general? In detail?

These are parts of the standard EIA and SIA process. I don't think that the new offshore activities should be handled any differently than the current ones in terms of standard procedures. On the other hand, we will not be dealing with oil and gas production and all of the risks associated with the industry. In addition, the agency needs to remember that they will be

dealing with new, experimental initiatives, and the companies will require some degree of flexibility in order to test the feasibility of their plans. How far do you think the Wright Brothers would have gotten if the FAA had written their regulations before they ever got their first plane off the ground? I think we would all still be traveling by rail.

35. What processes can MMS use to provide for balance between consultations and the time and burden to the projects?

Round-tabling would probably be best here. Listen to your new companies, and they should also listen to you and your concerns. There should be open consultation before any applications are called for – and probably before the final applications are printed. Save yourselves some headaches, and do not consider the application forms carved in stone until you have had several open hearings and smaller workshops with proponents. Bring specific questions with you for discussion, and have them bring specific questions that they would like the agency to field. No one is going to be an expert on any of these developments in these initial phases. Everyone will have a different area of expertise and the benefit of different experiences that they will bring to the table. Allow the agency to benefit from that and weave it into the permitting, application, and regulation process.

36. Are there specific aspects of the new ROW rule issued by the Bureau of Land Management that should be reviewed by MMS for consideration in its rulemaking?

I believe that insuring ROW is going to be inevitable, where the public good is weighed in the balance. ROW should be considered in MMS' deliberations regarding new offshore initiatives.

MMS seeks responses to the questions, and comments as to which option(s) may be considered the most effective and efficient. After analyzing the comments received from this notice, MMS will determine how to proceed. MMS encourages all interested parties to respond to these questions and to provide comments on any aspect of this program.

Kolian, S. and P.W. Sammarco. 2005. Mariculture and Other Uses for Offshore Oil and Gas Platforms: Rationale for Retaining Infrastructure. Technical Report, Eco-Rigs of Eco-Endurance Center, Baton Rouge, LA. 56 pp. (incl appendices).

Attachment A

Transfer of Offshore Platforms
Assignment of Liability
Recommendations

Paul W. Sammarco
LUMCON, Chauvin, LA

Liability has been and remains a primary concern of oil and gas companies involved in offshore exploration and production, as well as of all parties interested in participating in offshore activities. The purpose of this document is to outline a model whereby liability may be transferred from oil/gas companies and re-distributed, resulting in reduction of liability for each party concerned.

In this model, liability is split between four different levels.

Level 1 – The Well

In this model, it is assumed that a plug-and-abandon (P&A) operation has been performed on the well. There are several means by which liability at this level may be handled.

a) Responsibility for liability associated with the plugged well and its associated resource can be assigned to that party responsible for the P&A operation. This may be the previous hydrocarbon production company, the company contracted to conduct the P&A operation, or both.

b) Responsibility may be assigned to current regulations, whereby responsibility is assigned to previous lessees or operators in the reverse chronological order in which they were associated with the lease. In this case, however, liability should be defined by whether the well was actually used, disturbed, or accessed in any way by the lessee. Ownership and use of the platform alone and its environs, completely separate from the well and without contact with the well, would be not be sufficient to result in liability of that company for any leakage or failure of the P&A'ed, unless the owners were found to significantly disturb the well in some way.

Level 2 – Contamination Associated with the Structure

The conductors and jacket of the platform often have contaminants associated with them. The removal of any hydrocarbons, heavy metals, grease, etc. derived from oil and gas operations is the responsibility of the current platform owner and the post-production purchaser (non oil/gas company) to insure that the platform is cleaned after production has ceased and prior to initiation of any non-oil/gas activities on the structure. The costs of such cleaning may be negotiated between the post-production purchaser and the oil company owner. Responsibility for any release of contaminants that breach EPA or other regulations after the cleaning will be assigned to the party or parties responsible for cleaning.

Level 3 – The Platform Structure Itself

The platform owner will be responsible for liability for the structure itself. Once the well(s) of a platform has been P&A'ed and the production equipment removed, however, the platform is no longer involved in oil or gas exploration and production. For this reason, it is important that liability be reduced for the owner. The structure will have become equivalent to a lighthouse or any other structure at sea which could potentially be a hazard to navigation. For this reason, it is critical that navigation aids be vigilantly maintained. If such is the case, the platform owner should not be held liable for any more than the owner of any other potential navigational obstruction. Once an oil and gas operator has transferred its interest in the actual structure to an entity approved to conduct alternative uses of the facility, the original oil/gas company should no longer be held responsible for liability regarding the platform structure or its activities.

Comment [cab1]: We know how to remove and sipose of this equipment and have to do it under the present regulations. To make the new owner responsible would add significantly to their start-up costs. There would be nagging liability questions anyway for the oil company, so I think we would prefer to take care of this ourselves. We will want to do a final survey done (3rd party?) to clearly establish what condition the facility is in when we turn it over to the new, alternative use, operator.

Level 4 – Lessees Involved in Various Activities on a Non-Producing Platform

Activities projected to be sponsored on post-production platforms will vary greatly in character. They may include activities as diverse as wind energy generation, recreational diving, recreational fishing, mariculture, coral mitigation banks, etc. Each of these activities carries with it different types and levels of risk. Thus, the level of liability may be expected to vary widely between them.

It is recommended that liability insurance be carried by the lessee, and that that insurance be designed to cover the specific activities of the lessee on the platform.

It is also recommended that, for Levels 2, 3, and 4, liability be in line with the type of platform, concomitant with the type of activity to be pursued there, and limited or capped by legislation or regulations. The purpose of the cap is to discourage frivolous suits and make it known that small businesses using these structures are not equivalent to oil or gas companies.

If adopted, this multi-tiered liability system will -

. Reduce the amount of total liability for the platform, and
. Distribute the cost of liability insurance between four different parties.

By reducing these liabilities and the costs of insurance for all parties involved in offshore non-oil/gas activities, the cost of owning a platform and of conducting business operations on the platform will become affordable by a wide variety of different-sized businesses operations.